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cont'd

2. (Once amended) A device according to claim 1, wherein the hot press machine includes opposing pressing surfaces for pressing the joined member therebetween, and the pressing surface in contact with the catalyst carrier substrate is maintained at a temperature lower than a temperature of the pressing surface in contact with the solid polymer film.

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7. (One amended) A method for manufacturing a solid polymer film with a catalyst deposited thereon made of a catalyst and a solid polymer film, comprising:  
preheating said polymer film;  
precooling a catalyst carrier surface of at least one catalyst carrier substrate carrying a catalyst on one side thereof;  
contacting the catalyst carrier surface with the preheated solid polymer film;  
forming a joined member by heating and pressing the catalyst carrier substrate and the solid polymer film; and  
separating the transfer substrate from the joined member.

8. A method according to claim 7, wherein in the forming a joined member step, the heating and pressing is performed by opposing pressing surfaces and the pressing surface in contact with the catalyst carrier substrate is maintained at a temperature lower than a temperature of the pressing surface in contact with the solid polymer film.

#### REMARKS

Claims 1-10 are currently pending in the present application. Claims 1-2 and 4-6 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 2,485,725 to Francis ("Francis '725") in view of U.S. Patent No. 4,724,026 to Nelson ("Nelson"). Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Francis '725 and Nelson in view of an article by Temin (in Handbook of Adhesives) entitled *Pressure-Sensitive Adhesives for Tapes and Labels* ("Temin article"). Claim 7 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Japanese publication JP 10-064574 ("Kazuhiko") in view of Nelson, while claim 9 stands rejected under 35 U.S.C. § 103(a) as unpatentable over these references in further view of the Temin article. Finally, claims 8 and 10 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Kazuhiko and Nelson in further view of U.S. Patent No. 2,556,078 to Francis ("Francis '078").

The Applicant has reviewed the September 11, 2002 Office Action, and respectfully submits the foregoing amendments and following remarks in response thereto. The Applicant has amended independent claims 1 and 7 to incorporate a feature of the present invention not taught or suggested by the cited references, *i.e.*, the carrier substrate precooling limitations of their respective dependent claims 2 and 8. In addition, claims 2 and 8 have been amended to recite a feature of the present invention disclosed in the specification relating to the forming the joined member using lower heat on the carrier substrate side of the joined member to enhance the transfer of the catalyst material from the carrier substrate to the solid polymer film.

In view of these amendments and the following remarks, the Applicant respectfully requests reconsideration of the pending rejections and allowance of claims 1-10.

**1. Amended Independent Claims 1 and 7 Are Patentable Under §103(a).**

The Applicants respectfully traverse the rejections of independent claims 1 and 7 under §103(a) as unpatentable over Francis '275 and Nelson on the grounds that these references do not teach or suggest all the features of these amended independent claims.

The present invention is directed to an apparatus and method for highly efficient, high quality transfer of a catalyst material from a carrier substrate to a solid polymer film used in a fuel cell, wherein, *inter alia*, the solid polymer film is pre-heated prior to being mated with the catalyst-bearing substrate in order to improve the transfer of catalyst from the substrate to the polymer film, and the catalyst-carrying substrate is pre-cooled prior to mating with the solid polymer film to further enhance the transfer of the catalyst to the polymer film.

Consistent with the foregoing, claims 1 and 7 have been amended to incorporate the substrate pre-cooling feature previously recited in their respective dependent claims 2 and 8. Separately, claims 2 and 8 have been amended to further define specific embodiments of the invention recited in claims 1 and 7 in which the surfaces which hot press the substrate and polymer film together are maintained at different temperatures (*i.e.*, substrate side cooler than polymer film side), thereby further enhancing catalyst transfer and subsequent substrate removal.

The Applicant respectfully submits that none of the cited references, either alone or in combination, teaches or suggests the invention recited in amended claims 1 and 7. Specifically, none of the references suggests the novel catalyst-bearing substrate pre-cooling

in order to enhance catalyst transfer to the solid polymer film. Indeed, the only reference to cooling in *any* of the cited references is in Francis' inclusion of *post*-hot pressing cooling of the heated joined member prior to post-pressing removal of the substrate.

In view of the foregoing, the Applicant respectfully submits that Francis '275 and Nelson fail to teach or suggest the present invention as recited in amended claims 1 and 7, and therefore these claims are patentable over these references under § 103(a). Moreover, because none of the cited references (Francis '275, Nelson, Temin article, Kazuhiko or Francis '078) teach or suggest the foregoing features of the present invention, dependent claims 2-6 and 8-10 are patentable under § 103(a) by virtue of their dependency from allowable independent claims 1 and 7. Accordingly, the Applicant respectfully requests reconsideration and withdrawal of the pending § 103(a) rejections of claims 1-10.

### CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the presently pending claims are in allowable form. The Applicant earnestly solicits an early and favorable action on the merits and issuance of a Notice of Allowance for claims 1-10.

The Examiner is invited to contact the undersigned at (202) 220-4232 to discuss any matter concerning this application.

The Applicants do not believe that any additional fees are required in connection with this submission. Nonetheless, the Applicants authorize payment of any additional fees under 37 C.F.R. § 1.16 or § 1.17 or credit of any overpayment to Deposit Account No. 11-0600.

Respectfully submitted,



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**MARKED-UP VERSION OF AMENDMENTS**

**IN THE CLAIMS:**

1. (Once amended) An apparatus for manufacturing a solid polymer film with a catalyst deposited thereon made of a catalyst and a solid polymer film, comprising:  
a heater that preheats the solid polymer film;  
a hot press machine that forms a joined member by heating and pressing at least one catalyst substrate carrying a catalyst on one side of a transfer substrate and the solid polymer film pre-heated with the heater while the catalyst and the solid polymer film are in contact;  
a cooling machine that cools the at least one catalyst carrier substrate before the catalyst comes into contact with the pre-heated solid polymer film; and  
a separating machine that separates the transfer substrate from the joined member.

2. (Once amended) A device according to claim 1, [further comprising:] wherein the hot press machine includes opposing pressing surfaces for pressing the joined member therebetween, and the pressing surface in contact with the catalyst carrier substrate is maintained at a temperature lower than a temperature of the pressing surface in contact with the solid polymer film.

[a cooling machine that cools the joined member.]

7. (One amended) A method for manufacturing a solid polymer film with a catalyst deposited thereon made of a catalyst and a solid polymer film, comprising:  
preheating said polymer film;  
precooling a catalyst carrier surface of at least one catalyst carrier substrate carrying a catalyst on one side thereof;  
contacting [a] the catalyst carrier surface [of at least one catalyst carrier substrate carrying a catalyst on one side thereof] with the preheated solid polymer film;  
forming a joined member by heating and pressing the catalyst carrier substrate and the solid polymer film; and  
separating the transfer substrate from the joined member.

8. A method according to claim 7, [further comprising:] wherein in the forming a joined member step, the heating and pressing is performed by opposing pressing surfaces and the pressing surface in contact with the catalyst carrier substrate is maintained at a temperature lower than a temperature of the pressing surface in contact with the solid polymer film.

[cooling the catalyst substrate prior to contacting the catalyst carrier substrate with the solid polymer film.]